

REMARKS

At the outset, the Applicants thank the Examiner for the thorough review and consideration of the subject application. The Non-Final Office Action of October 22, 2003 has been received and its contents carefully reviewed.

Claims 1-26 remain pending in the present application, where the Applicants have amended claim 19. In view of the following remarks, the Applicants request reconsideration and allowance of the claims.

At page 2 of the Office Action, the Examiner objected to the numbering of the claims under 37 C.F.R. § 1.126 and renumbered originally misnumbered claims 26-30 as claims 22-26, respectively. As provided above, the listing of claims confirms the Examiner's renumbering of previously presented claims 26-30.

Further at page 2 of the Office Action, the Examiner objected to the drawings as failing to show Figure 4, mentioned within paragraph [0041] of the specification as originally filed. By the present amendment to the specification, replacing the erroneous reference to Figure 4 with a reference to existing Figure 3, Applicants respectfully submit the Examiner's objection to the drawings is moot, and request that the Examiner withdraw the objection.

Still on page 2 of the Office Action, the Examiner rejected claims 1-26 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner stated, with respect to claims 1, 2, 4, 5, 7-10, 13, and 18-24, "it is not clear what the transition region is meant. Further, the claims fail to recite the functional performance of the transition region." The Applicants, however, respectfully disagree and submit that recitations of "functional performance" are not required under 35 U.S.C. § 112, second paragraph.

The test for definiteness under 35 U.S.C. § 112, second paragraph, is whether those skilled in the art would understand what is claimed when the claim is read in light of the specification. See, for example, M.P.E.P. § 2173.02. In the present case, the Applicants respectfully submit that one of ordinary skill in the art would understand what is being claimed in claims 1, 5, and 19, in light of the specification.

For example, claim 1 defines a distributed Bragg reflector, comprising, among other things, a first transition region, wherein the first transition region includes doped first transition semiconductor layers having a plurality of thicknesses and doping levels. Moreover, the “functional performance” of the first transition region is illustratively explained, for example, with reference to Figure 3, and in the specification beginning, for example, at paragraph [0036]. Similar arguments made above with respect to claim 1 are equally applicable to claims 5 and 19. Accordingly, the Applicants respectfully contend that one of ordinary skill in the art would understand what is presently claimed; therefore, the Applicants request that the Examiner withdraw the rejection under 35 U.S.C. § 112, second paragraph.

At page 3 of the Office Action, the Examiner rejected claims 1-30 under 35 U.S.C. § 102(b) as allegedly being anticipated by Marta (U.S. Patent No. 6,185,241). This rejection is respectfully traversed and reconsideration is requested.

Applicants respectfully submit that claim 1 is allowable over Marta in that claim 1 recites a combination of elements including, for example “...a doped first semiconductor layer including a first binary composition and having a first index of refraction; a doped second semiconductor layer including a second binary composition and having a second index of refraction that is different than said first index of refraction; and a first transition region between said first semiconductor layer and said second semiconductor layer, wherein said first transition region includes a plurality of doped first transition semiconductor layers having a plurality of thicknesses and a plurality of doping levels.” Marta fails to teach, either expressly or inherently, at least these features of the claimed invention.

The Examiner states Marta shows “...wherein the top DBR [14] includes a doped first mirror layer, a doped first mirror layer, a doped second mirror layer, and a first transition mirror region (col. 9, l.31-63).” Assuming that the Examiner intends “doped first mirror layer” to read on the claimed “doped first semiconductor layer,” Applicants respectfully submit Marta fails to teach or suggest, either expressly or inherently, at least wherein the “doped first mirror layer” includes a binary composition. For example, Applicants respectfully direct the Examiner’s attention to column 9, lines 44-50, Marta states “The laser used for this demonstration comprised... mirror stacks that each comprises a plurality of individual layers of aluminum

arsenide and aluminum gallium arsenide with graded aluminum therebetween. The first mirror stack 14 comprises P-doped layers.” Accordingly, Applicants respectfully submit Marta fails to expressly or inherently teach that the “doped first mirror layer” of the top DBR [14] includes a binary composition. Moreover, assuming that the Examiner intends “doped second mirror layer” to read on the claimed “doped second semiconductor layer,” Applicants respectfully submit Marta fails to teach or suggest, either expressly or inherently, at least wherein the “doped second mirror layer” includes a binary composition for similar reasons as discussed above. Lastly, and assuming that the Examiner intends “first transition mirror region” to read on the claimed “first transition region,” Applicants respectfully submit Marta fails to expressly or inherently teach at least wherein “said first transition region includes a plurality of doped first transition semiconductor layers having a plurality of thicknesses and a plurality of doping levels,” as set forth in claim 1.

Independent claims 5 and 19 define a laser and a vertical cavity surface emitting layer, respectively. Each of claims 5 and 19 comprise features similar to those recited in claim 1. Accordingly, claims 5 and 19 are allowable over Marta for at least the reasons set forth above with respect to claim 1. In addition, Applicants respectfully submit that claims 2-4, 6-18, and 20-26 are allowable over Marta for at least the reason that they variously depend on claims 1, 5, and 19.

For at least the reasons set forth above, Applicants respectfully contend that claims 1-26 are allowable over Marta and request that the Examiner withdraw the rejection of claims 1-26 under 35 U.S.C. § 102(b).

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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